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ABSTRACT

Research findings, theories, and examples of the effectiveness of radio and television programs are organized to create a guide for analyzing their educational messages. It is demonstrated that radio and television programs are composed of a set of messages made up of more than one level of language, such as verbal (words), paraverbal (pitch, intonation), and analogic (sounds analogous to real ones), and that these levels interact with each other creating a multidimensionality which not only gives meaning to the message but can also jeopardize or distort the expected results. Actual examples from television (mostly from Sesame Street) and from radio (mostly from the Mexican Radioprimaria) are used for purposes of analysis. References are included. (KKC)

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OPEN, SESAME:
A Key to the Meaning of the Educational Broadcast Message

by

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Institute for Communication Research

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"What matters most for our purposes is the fact that people with all their pre-conceptions, prejudices, tastes and fears, characters and imagination talents and opportunities are involved in the various rooms where programs are born and brought to the stage of showing. So long as these people are not properly informed of what is essential part of their particular activity-the making of TV programs-how could we expect that they act otherwise than via their conceptions and opinions?

International Seminar on Broadcaster-Researcher Cooperation
Leicester, England (1970)

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Introduction

The main goal of this paper is to create a tool to analyze the educational messages of radio and television. It is not useful for producers or researchers to know that message X is more effective than message Y if there is no way of explaining what in the message makes the difference. Usual answers like "it is more attractive," "has more visual richness," "is too slow and boring," "is too complicated," and "uses animated characters" help, but are hardly a serious guide for new production or improvement.

The other aim of this work is to organize simply a number of analytical studies by researchers, educators and producers in order to make those findings easily available to the producer who wishes to choose expressive devices for a particular set of educational objectives.

Our working assumption is that other problems in the educational system are satisfactorily solved: i.e. there are explicit curriculum goals, the transmission and reception are adequate, and the conditions of the students and classroom environment are minimally comfortable. It will make sense to improve a message to get attention of children only if they are not hungry or if the signal is clearly understandable.

We assume also that the creative talent of the producers is of the best available level. The purpose of this work is not to restrain the full expression of the creativity but, on the contrary, to provide tools for developing and applying that creativity to its highest pedagogical potential. The relation between systematicity and spontaneous creativity is well proposed by Gerbner (1969, p.XI) in reference to content analysis:

". . . more systematic analysis and objective approaches do not replace the need for intuition, judgment and insight . . . ,

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on the other hand, traditional reliance on intuition and personal judgment alone could not satisfy these criteria [of systematicity and objectivity]"

The Multidimensionality of the Message

Programs are composed of a set of messages and those messages are usually made up of by more than one language. For instance the radio message can be divided into the verbal level (words), the paraverbal level (pitch, intonation, etc.), and the analogic level (sounds analogous to real ones, like wind blowing or jungle noises). These levels interact with each other and the message will be the result of their composite action. An actor was able to convey fifty different messages in the words "this evening" just by changing their paraverbal level. Not only was he able to predefine each of the fifty situations but a sample of common listeners proved to be able to decode most of the messages correctly (Jakobson, 1960, p.354).

This multidimensionality not only gives additional meaning to the message but it can also jeopardize or distort the expected result. It has been demonstrated that when children listen to a voice that sounds funny to them, they apparently concentrate on the voice and miss what the speaker is saying (Reeves, 1970, p.17). For children the surprise effect of an abnormality in the composition of the message is more attractive than its verbal meaning. There is nothing strange in the face of a woman or in a male voice, but when Lauren Bacall was presented in an experimental session of Sesame Street reading a story, the children did not recall the story. The responses elicited were: "Maybe she is sick," "She talks like a man," "If she put on men's clothes she wouldn't even need a mask." (Reeves, 1970, p.17). We will analyze how and when this effect can be use-

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ful instead of distractive when we talk about the poetic component (p.13-15)

The Contextual Meaning is External to the Message but gives Meaning to it.

A second problem to consider about the message, besides its multidimensionality, is that each of its components are signs and therefore they belong to a code.* The most important fact is that the meaning of the sign comes not from the sign itself but from its position within a system, the code. For example, the image of an owl could be decoded by an urban child as that of a threatening animal, and by a rural child as a pest controller.

In the broadcast educational message, the attention of the audience should be focused on its meanings as defined by the curriculum goal. Therefore it is necessary to be aware of possible decoding of the signs. For instance, when Bill Cosby of "I Spy," was presented in Sesame Street not as a spy but just as a black male story reader, the children were convinced that they had just seen "I Spy," (Reeves, 1970, p.17). Only when the 'outside meaning' adds to the message in the required direction can it be a useful asset. For instance, Mark Spitz, the Olympic superswimmer, is coded in health and physical fitness at the top, therefore his association with 'milk' in ads codes milk also at the top of those variables.

It is clear that in the meanings of the different components to obtain the desired pedagogical value of the message, and also, that it is necessary to know the different codes that can be associated to each element of the message in order to choose elements that can add the maximum

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*'Code' is used in this paper in its structural definition, as the relationship between two systems which elements are linked one to one, and where the presence of one element of one system refers to its counterpart in the other system.

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desired meaning. We will return to this point in the chapters concerning the 'poetic' and 'metalinguistic' components of the message. (pp.8 and 38.)

A taxonomy, including words such as "metalinguistic component" or "poetic component" has been established by the model we are using in order to cope with the complexity of the content of the messages. A good taxonomy should accomplish several conditions (Kratwohl, Bloom and Masia, 1956, p.11):

a) its set of classifications should be ordered and arranged on the basis of a consistent set of principles;

b) may be tested by determining whether it is in agreement with empirical evidence and whether the way in which the classification is ordered corresponds to a real order among the relevant phenomena,

c) must also be consistent with sound theoretical views available in the field, and

d) should be of value in pointing to phenomena yet to be discovered.

Our work will be based on the componential model developed by Roman Jakobson (1960).

The Componential Model of the Message.

Jakobson (1960, p.353) proposes that all messages have components that reflect the six elements that constitute any communication process. Each of these components has a particular function within the message.

CODE COMPONENT
(metalinguistic function)

CHANNEL COMPONENT
(contact function)

ADDRESSER COMPONENT
(emotive function)

RECEIVER COMPONENT
(conative function)

MESSAGE COMPONENT
(poetic function)

CONTEXT COMPONENT
(referential function)

Fig.1.Components of the message and their function. From Jakobson,1960,p.353

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"The ADDRESSER sends a MESSAGE to the RECEIVER. To be operative the message requires a CONTEXT referred to, seizable by the receiver and either verbal or able to be verbalized, a CODE fully or at least partially common to both . . . , and finally a CONTACT, a physical channel and psychological connection between, enabling both of them to enter and stay in communication." (Jakobson, 1960, p.353)

The following examples of educational messages will briefly introduce the six components before entering into a more detailed analysis of each in the next chapters.

Context Component. Educational messages are predominatly oriented towards the context. For instance, "A body falling in the vacuum is accelerated . . . ." The direct reference of the message is to be a conceptual context in which there is a "body," a "vacuum," "acceleration," It encompasses what is also called the referential, denotative function.

Addresser Component. "The direct expression of the speaker's true or feigned attitude towards what he is speaking about is what is called the expressive function. Emotions are introduced by interjection, modulations of voice and an infinite number of other expressive devices." Jakobson (1960, p.354) If the addresser has special status as representative of the socially accepted behavior knowledge and values the importance of this function will be multiplied.

Receiver Component. This part of the message focuses on obtaining special behavior (overt or covert) from the receiver. It is the predominant function in the imperative sentence. As we will see there are complete lessons that are based purely on learning to understand and accomplish orders in which this function is the predominant one.

Channel Component. As it has been shown in information theory, the

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"contact" function of certain messages serves primarily to establish, prolong or discontinue communication. This is done to check whether the channel attracts the attention of the listener or to confirm his continued attention. This has been a major problem for broadcast messages where no immediate feedback can complete the checking and where the direct control over the attention of the addressee is nonexistent.

Code Component. Whenever the addresser and/or the receiver need to determine whether they are using the same code, language is analyzed. A common checking device is, "What do you mean by such and such word or concept?" The process of education is based on the transfer of different sets of languages or special codes, beginning with the mother tongue. In fact, the differentiation of knowledge in separate disciplines is in itself one of the basic metalingual tasks performed by the school. ("This is geography, this is history. . . .")

Message Component. Jakobson explains this function by saying that it "promotes the palpability of signs," implying that in the message there are elements calling attention to the message itself. As we will show later this 'poetic' function---which exists in all messages---has been instrumental in educational achievements by instructional television and radio. This poetic function is crucial to the process of attention and memory, and also intimately related to some controversial issues about 'mechanical learning'.

While these six functions appear in all messages, different educational needs and approaches make some of them predominant over the others. There are also different ways of fulfilling these functions, some of which are more successful than others depending upon the characteristics and goals of the specific educational system. The next chapters will

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explore the possibilities of each function, discuss existing research models and experimentations with them, and will offer examples from actual educational programs.*

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*Most of the examples are taken from "Sesame Street" and from the "Radioprimar series for 4th, 5th, and 6th graders produced by the Audiovisual Department of the Ministry of Education of Mexico. We are grateful to these programs for the efforts they continually make to improve the quality of their educational series. The examples presented are chosen for expository reasons and, given that they are out of context, no value judgment of them is assumed.

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The Components Referred to the Message Itself and their Poetic Function.

To explain the poetic function we will adopt an expanded interpretation of Levin's model of the basic structure of all poetic messages. (Levin, 1964) He explores language from the point of view of structural linguistics and arrives to the basic structure of the poetic message. "Poetic message is the message that has the quality of reproducing itself in its own form, stimulating our mind to reconstruct it as it is" (Levin, 1964, p.10). He calls this 'coupling of convergence of equivalences'.

Levin says that in language there are positional equivalences and natural equivalences. Two linguistic forms are positionally equivalent when they have a similar linguistic environment, i.e. when they accept the same alternations. For instance, in sentences 'Noun Verb Noun', both Noun positions are equivalent because they allow the same alternation: all the words that fit in the first Noun position fit also in the second, even if the semantic result is unusual. Thus in "tall but wooden building" both "tall and "wooden" are in equivalent positions qualifying the head "building."

Natural equivalences can be equivalences in sound or in meaning. An equivalence in sound occurs when two or more words have similar phonological or material components. For example the initial sounds of 'get' and 'call' have two features in common, both are stops and velar. A natural equivalence in meaning (or semantical equivalence) refers to extralinguistic elements. Two forms are semantically equivalent when part of their semantic field overlaps, e.g. 'night' and 'day' both refer to a twenty-four hour cycle; 'happy' and 'sad' both refer to a particular mood.

In order to have a basic poetic structure, however, it is not enough to have a convergence of equivalence of positions or a convergence of natural equivalences. "Wake my nephew and paint the garage" has positiona

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convergence VNVN but there is no semantic equivalence between "wake" and "paint" nor between "nephew" and "garage." However, if we say "he painted the house and whitewashed the garage,"* we keep the convergence of positional equivalence and add a convergence of natural semantic equivalences--'painted/whitewashed' and 'house/garage.'

In summary, a poetic structure appears whenever a convergence of equivalent forms (in sound or meaning) is coupled with a convergence of equivalent positions. In "call my nephew and get my niece" we find all three equivalences:

	Positional	Call V	my nephew N
		get V	my niece N
	Semantic	verbs of action and appeal	kinship terms
Natural			
	Sound	'c' and 'g' velar stops in monosyllabic words	similar sound with the variation 'ephew'/'iece'

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*Levin's examples. Analysis and illustrations by the author.

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This distinction of poetic forms can be developed in other sub-categories as will be shown later. It is important to understand now that the poetic effect is created by a systemic pressure of the different elements composing a message. The former examples were linguistic ones but the same applies to other encodable systems such as images, photograms, colours, etc. Our contention is that this kind of poetic array or systemic pressure of the language has definite influence in the learning process, first because it influences enjoyment, attention and recall, and second, because this kind of internal organization of the message is learned as an empty structure and later repeated by the student with different contents. It is possible, of course, that these poetic structures can be learned not by mechanical repetition but by a real understanding of the mechanism that makes the message a poetic one.

As a general example of a poetic structure used for educational purpose let's analyze a game used in "Sesame Street' for teaching the concept of class inclusion/exclusion. It is a set of four elements in which it is necessary to indicate "out of this four, which three belong together." The continuous playing with the positional convergence in the image (floating groups of three elements within a set of four) filled with semantic contents depending on the characters' choices can facilitate the learning of the mechanism by the children. (see Fig.2.) In this example as in others from "Sesame Street" we discover that the coupling of convergences is multiple. For instance, the sentence that accompanys the game teaching the concept of exclusion says:

"One of these things, is not like the others,
one of these things, just doesn't belong. . . ."

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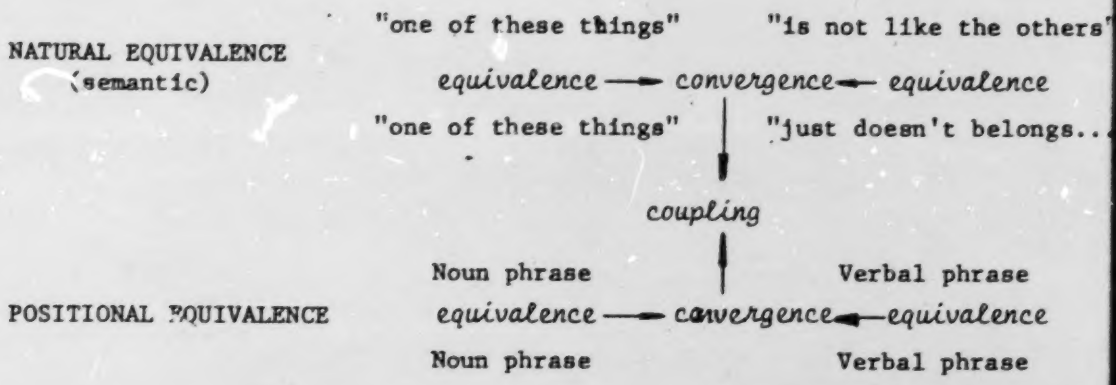

Fig.2. Example of Coupling of Convergence of Equivalences in a Sequence from Sesame Street.

We can see the positional equivalence of these two verses and also the semantic equivalences---"one of these things/one of these things" and "it is not like the others/just doesn't belong. . . ." Furthermore, the music and the sound of the last words "doesn't belong . . . ." is stretched out suggesting openness, leaving something outside.

The nature equivalences (video and sound) coupled with the positional equivalence, all suggest the idea of non-belonging or of exclusion. Similarly the song accompanying the game about the inverse concept 'inclusion' closes with a cutting, inclusive end:

"Three of these things belong together,

Three of these things are sort of the same."

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Enjoyment is an objective of most educational programs, (about "Sesame Street", Gibbon and Palmer, 1970, p.20) and has proved to be related to recall (Salomon, 1972.b) The examples presented by these authors confirm the correlation between the existence of poetic structures and enjoyment (other examples are analyzed below). It is possible, however, to suggest that mere repetition of poetic structures, while improving enjoyment and recall, do not present gains in 'independent thinking.'

Keeping in mind the poetic structure as coupling of convergences, it is possible to explore how these couplings interact in concrete educational examples. We will analyze those interactions in three different dimensions:

a) tensions between and within levels of language,

b) tensions in time or iterative effects,

c) tensions between the poetic effect and the learning goal.

Tensions Between and Within Levels of Language.

Gibbon and Palmer (1970, p.32) offer the example they call the James Earl Jones effect: "He (Jones) recites the alphabet and the letters appear alternatively at the sides of his head just before he names them. This effect appears to be a three stage sequence of effects. The first time a child sees the Jones performance he begins almost at once to respond to the implicit invitation to say the alphabet along with the performer. In somewhat later repetitions he begins to name the letter as soon as it appears, before Mr. Jones has named it. . . . With still further repetitions, the child begins to anticipate the printed symbol as well. It stimulates the feedback and reinforcement through television. This effect is reinforced when Mr. Jones

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hesitates for one instant to name the letter present on the screen."

The three levels---video verbal (letters on screen), video analogic (face gestures), and audioverbal (voice of Jones)---formed a parallel counterpoint tension in which the children can get involved. The clear poetic structure was easily apprehended by the children and gave them the substratum for emorizing and prompting an overt response.

On the other hand, when a similar effect was attempted using a little girl reciting the alphabet and making mistakes that were corrected by voices and comments off-stage, the children didn't react positively and got distracted. The rhythm creating the tension was broken by the distracting interruptions and the poetic effect disappeared.

Another way of creating tension is the well known technique used in printed material of "filling in the blanks." In one-level messages (e.g. non-illustrated books) it is the pressence* of previous words that give cues to predict the following word. But in multilevel material, (for instance, an illustrated book, or television or radio with sound and voices) the effect can be supplemented by offering on one level (image) the signifier that is to be filled on the other level (verbal). This effect is used in labelling (e.g. spelling the letter presented in video), identification (e.g. selecting from the four letters in video which is the one listened in audio) (Palmer, 1969).

The structure of sound also works very well for achieving this effect. Both the internal sound of the phrases (rhyming) or the accompanying music help the process of recall.

"With repetition of the rhymed materials the gaps between the remembered rhyming words were filled in, and many children could successfully sing the entire jingle of one-minute long film

---

*Called Markovian in information theory.

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as it was presented."

(Gibbon and Palmer, 1970, p.32)

This effect is not new to music teachers and is basic in learning the multiplication tables.

Load of Materials in the Different Levels

Research on visual and auditory messages by Travers (1964, p.351) has demonstrated that overloads of material in one level can reduce the recall of inputs from the other level. Travers (quoted by Carrol, 1972, pp.129/130) indicates that auditory and visual modalities constitute separate channels that have to operate independently. Either channel can be overloaded with information. From this, Travers argues that sometimes a double channel is dysfunctional because combined presentations require rapid alternation of attention and may cause overloading of the separate channels. Even if the warning is correct for some cases, it cannot be assumed true in all cases. Travers bases his reasoning purely on a quantitative approach: attention cannot grasp more than a certain amount of stimuli. But he disregards the qualitative aspects of the internal structure of the message, both at each level of language and in the connections between them. Therefore, the maximum possible load depends not upon the number of stimuli and language levels but upon how they are organized and interconnect with each other. Channels are independent but their messages can be connected, so precisely that one meaning at one level can complement another. Of course repeated exposures to the message will allow the receiver to grasp new connections and meanings. All the famous performing art works exist on many levels, but to return to our educational focus we will present an example from "Sesame Street" where sound, words off screen, music, iconic, and verbal images all work together.

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to create one message which proved to be effective for attention and recall. (Palmer, 1969)

> "The image is done with clay animation. The clay is moulded in successive stages, each photographed on a single frame of motion picture film. A small blob separates itself from a larger narrator blob and forms into the letter E. Next from the clay E are rapidly produced two GG and the letters are aligned to spell EGG. A clay egg forms behind the word and hatches to produce a baby eagle. The word "egg" changes eagle and the eagle eats the word."

Of course the more levels a system is using and the more information is carried in each of them the more difficult it will be to make all of them reinforce each other instead of proposing avenues for distraction. This is why an educational system should only use as many levels of language as it is prepared to deal with. It should not follow the assumption that the greater the number of stimuli the higher the educational impact will be. A classic experiment gives a good example of this. Comparing radio with television, Nelson (1957, p.274) showed no difference in the comprehension and recall of the same news coming from the radio or the television. However, in his experiments (for "commercials"), television did better than radio. This is not hard to explain considering the amount of energy and talent invested in making all the languages in a TV ad work with maximum intensity and interconnection, as compared to the amount spent per minute in a news item presentation. Reeves (1969, p.13) confirms the point in the educational field.

> "(Sesame Street) commercials usually bring the attention level up near the maximum. Commercials are generally exceptionally good pieces of production."

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Findahl (undated) analyzed the effect of visual illustrations upon perception and retention of news programs and found that picture aided news had greater comprehension and retention than news that was just read but he found no difference between still or moving pictures. The visual image added something, but the motion didn't add to the still image.

Speed of presentation interacts with this effect. Rapidly paced programming is generally more appealing than slower paced segments. However, pace has limits and seems to be an initially appealing factor in a message but one where the attention tapers off after the audience is familiar with a certain rate of pacing and if one of the levels is not poetically helping the other the imbalance is educationally negative. Reeves (1969, p.12) gives an examples of this negative effect.

> "Roger Ranjet, an animated Super Hero Cartoo and Man from Alphabet were characters that talk too much and the children stop watching."

Poetic Tension Working in Time or Iterative Sequences.

Repetition has proved to be a powerful teaching device with completely different mechanisms and possibilities in radio and television messages than in printed media. The multilevel nature of the electronic media is the main reason. Very young children enjoy listening to the same tale over and over again. They enjoy mastering its structure and discovering variations. Rereading a book lesson does provide a few variations in the stimuli, but radio and television allow a richer structure of the message, giving the audience the opportunity to explore new dimensions and the producer the possibility of introducing new variations.

The same commercials repeated time and again attract the attention of students who can discover new details and meanings with each repetition and organize them with the previously noticed ones. In that sense the richer

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the structures of relationships within and between levels in the message, the longer the span of attention the message is going to get.

> "Given careful design of the film, exact repetition ought to enhance the child's ability to integrate conceptually a set of elements and relationships too numerous or too complex for him to grasp in a single viewing."
>
> (Gibbon and Palmer, 1970, p.26)

The exact repetition of a poorly built message (both because it has very few relationships or because the relationships are poorly connected) creates boredom and distraction. If, however, the repetition operates using partial variations, the expectancy of the variation can increase attention as well as having other non-desired side effects. For instance, in "Sesame Street" an identical situation (counting back from ten) results in a variety of comic endings. Gibbon and Palmer asserts that to the "naturally suspenseful situation of the rocket count down is added the

> additional suspense of waiting for the disastrous pay-off. The childs attention is thus drawn compellingly to the number sequence being taught."

The children are also learning to analyze possible combinations in a given set. For instance, in this example, the outcomes of the story were different forms of unsuccessful rocket launchings (e.g. the control panel exploded, the controllers blew up, etc.) This casual learning is extremely important and can be stimulated by repeating the same problem and finding different solutions for it, even absurd ones, to create the habit of systematic exploration of possibilities.

In the Mexican "Radioprimaria" lessons, this strategy was used by having a grandfather telling his grandson about history. The variations

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in the incidental relationship "grandpa-grandson" maintains the student's interest, while the history stories, which have a basically similar structure, but different characters and combinations of interest and attitudes, teach different approaches to recurrent basic human and social problems.

Salomon (1972) studying the effects of format learning on children has showed experimentally that the relation between attention, enjoyment and learning was such that, at the beginning, the younger children had difficulties in grasping the format. However, they learned it after some lessons and increased their enjoyment and learning gains. Later the interest for the format was exhausted when no further exploration of the combinations or overlapping poetic structures was possible, enjoyment was reduced, although learning gains continued for some time before disappearing.

Learning Goal and Poetic Effect.

A poetic structure can effectively produce both attention and understanding while at the same time unrelated to the learning goal. In some cases it is the poetic structure itself which is the subject to be learned, e.g. the countdown, or the metaphoric structure as such. The danger is that the expressive device may focus all the attention on itself. For instance, in the Radioprimaria grandpa history telling, grandpa fell asleep can be very important for attention seeking but can displace the attention from the history subject. On the other hand, in the "which 3 out of these four" game, the monster muppet separates three rocks from a cookie and eats the rocks. His behaviour (normal for a monster) appears as quite incongruous and reinforces the basic concept of a common feature as basis for classification. Palmer and Gibbon (p.23) say:

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"Comedy has been most successfully used in those Sesame Street segments in which the comic moment coincides perfectly with the most critical learning opportunity."

In the same sense, rhyming can be used as a funny element as structure learning and as additory discrimination. Whether it enhances learning depends upon how well it is integrated with the crucial learning concept.

It is not by chance that we have used Sesame Street examples in the analysis. Poetic structures are predominant in Sesame Street in contrast to the series "Mr. Rogers' neighborhood" in which referential structures are predominant, or to the Mexican Radioprimaria, which had a high proportion of conative messages.

There are two explanations at this fact about "Sesame Street," one pragmatic, the other historic. First, "Sesame Street" should work even if an adult is not present and even if no additional work is done. It should hold the attention of children without external reinforcement (from adults) and should make them behave mentally or overtly in parallel with the message. Therefore, the message in itself should have "a systemic pressure and tension" (such as the poetic structure) in order to involve the stream of thought and behavior of the child. The second, or historical reason, is a consequence of the first. Advertising strategies have been developed to make maximum use of the minimum amount of time. Therefore, they have fully developed different levels of language, making them converge in a communicative goal. The dangers and advantages of it are analyzed below when we differentiated between mechanical learning and the understanding of the learning mechanism. (p.24)

Some Related Analysis Consistent with the Approach.

Following our line of argument, the semantic content will be

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important only in terms of the logical and poetical organization of the message. If the message is poetically well organized "vocabulary load" or "sentence complexity" will not work against comprehension and recall. That can explain the findings of Rosenshine (quoted by Carrol (p.107) that quantitative measures such as "vocabulary load" and "sentence complexity" have little or no validity in predicting gain scores, while such more qualitative factor as 'vagueness' (indexed by overuse of such words as pretty, very, some, maybe, etc.) and 'explaining links' (skilfull use of such connections as therefore, because, however, etc.) and 'use of examples,' will yield valid predictions.

The function of explaining links is to present the sentence that follows as the inverse or complement of the previous one. Therefore, it couples the sentences semantically and states their relationship. There is a spatial representation of the logic produced by those links. A 'therefore' connecting two sentences delimits each one and marks a hierarchy unidirectional in logical priority. This link creates a new level of meaning that is structural not semantic, and which organizes the semantic load.

The power of the variable 'uses of examples' confirms the assertion of the semantic coupling, e.g. "A world city may come identified with a particular area of work, thus New York is associated with investment and the money side of commerce. . . ." The positional equivalence "world city/ particular area of work" and "New York/investment and money side of commerce" clearly reinforces the meaning, explaining the better scores yielded when this variable increases.

A similar positive effect is achieved by another form of structural reiteration: discussion of instructional objectives during breaks (Games, p.437). The interpolations provide overview where the instructional material

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is correlated point to point to the overall instructional game. These discussions label, synthesize, and organize the material.

What is the Educational Value of the Poetic Component?

From different roads theoreticians as Whorf, Bruner et al, Brown and Lenneberg, Miller, Piaget and Salomon have arrived at a commonly accepted proposition. Salomon (1972,b p.403/409) summarizes it:

> "From the individual's point of view the communicational codes precedes the representational one and imposes itself on it."

This is consistent with the structuralist point of view, including Levi-Strauss, Barthes, Foucault and their followers.

This means that the internal organization of the message will be transferred in a process that is complex and more than just mechanical to the mind of the receivers, for our purposes, the learners. Are all messages or parts of messages transferred with the same intensity and durability? There are different factors relating to the effectiveness of that transfer, which are analyzed in other components of this model (e.g. Salomon's stated relation of 'novelty' and 'adequacy of the new message to 'codes pre-existing in the individual' is analyzed in the chapter about the metalinguistic function, pp.38-42) What we are considering here are only the poetic elements that are educationally important. In terms of "permanence," "possibility of recall," and "ability to be reproduced with different contents" Levin quoting Valery, says (p.60):

> . . . "The primary characteristic of ordinary language is that as soon as it is understood it vanishes, being replaced by the impressions, ideas, acts, etc, which it conveys. . . . The particular quality of poetic language is that it lasts. In poetry, both form and impression remain. . . ."

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His explanation is so clear that it merits reproduction in full:

> "Ordinary messages represent the temporary, ad hoc selection of elements (member of classes, rules) from the codes. There is essentially nothing in such messages which would assist the decoder in re-encoding them. In order for such messages to be re-encoded, an individual would first of all have to find himself in the same general circumstances under which the original message was encoded [the first time he received it.] He then, might or might not, duplicate the original message, various non-linguistic factors might interpose themselves. . . . A poem on the other hand is presented to an individual as a message with such equivalences (couplings) built into it that it assists the individual in re-encoding it uniquely. It prompts, as a result of its own systemic pressure, the same selections from the language code. . . ." (p.61)

The presence of poetic structures* yields three different consequences:

a) a message poetically built will be more effectively recalled than an ordinary one conveying the "same information."

b) besides transferring information about its referent (see referential function, page) a poetically built message will convey information about the coding procedures used for its construction, that can be used for other referential contexts. For example, the poetic structure of the Sesame Street message about 'class exclusion' is a tool to classify other 'things' which are new to the individual but which he can differentiate from one another on the basis of the 'distinctive feature' criterion.

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*As defined in page 9.

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c) The use of multilevelled media allows more richness in the poetic complexity. But as we have already seen, this produces both the problem of the increased risk of distraction and the possibility of reinforcement of the central message (see page 13)

A second consequence of this abundance of levels is that particular "syntactical" elements of non-verbal levels of language are relevant, i.e. the uses of zoom, the composition of the image, the pitch and richness of tones of the speakers, etc.

There are two main trends of research that analyze this aspect of the messages. One is to study the differential effect of a production feature as an independent variable (motion vs. still, zoom effect, colour, lightning, etc.) and measure the outcome against a control case. Schramm (1971) and Anderson (1972) present the most complete reviews of that research. The second trend being developed is the configurative codes of different genres of messages (both verbal and filmic) (Barthes, Metz, Todorow, Worth, Francastel, Eco.) The assumption behind this is that a particular feature of a medium's syntax (like a zoom, or colour) is effective because of its position in the larger formal and culturally meaningful structure of the codes of the whole message or composite of messages.

According to this position, it is not possible to isolate a generalizable value from a particular feature (like the close-up), disregarding the other kinds of shots present in the same message and their interrelation with the referential material they are encoding (subject matter). According to this line of research the particular features of a message have different cultural and historical meaning and their educational effect changes depending on when and where they are used.

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The Poetic Function: Learning or Understanding?

In summary, what we have done up to now is to connect the theory of 'code internalization' with the theory of the 'formal causes of the poetical effect,' presenting the way in which the message can display the rules that have commanded its construction. We attempt to explain this as basic information that is decoded by the receiver and becomes a part of his cognitive apparatus and development.

Finally, a remark of axiological nature: it is possible to argue that to emphasize "poetic" learning implies mechanical repitition and goes against "individual development" and "creativity." This is true insofar as the structures to be learned are so and repetitive as to restrain complex mental functioning. This is typical of messages that consist of repetitions, with minor variations, of some simple formulas, e.g. codes of authoritarian discipline, or a reduced set of mathematical rules learned by repetition (like the multiplication tables). This learning can be functional in proposing easy codes for action and problem-solving in circumstances in which a high predictability of behavior is expected. On the other hand, if these simplistic patterns are applied to all areas of personal and group behavior, it is possible to predict reduced development at both levels, individual and social.

An example is political slogans. Jakobson mentions (p.357) the power of I LIKE IKE, which has the 'positional/sound' couple of equivalences N V N / ay - ay - ay. (Jakobson, 1969)

> "Both [endings] of the trisyllabic formula I LIKE IKE rhyme with each other and the second of the two rhyming words is fully included in the first one (echo rhyme) /layk/-/ayk/, a paronomastic image of a feeling which totally envelops its object. Both [endings]

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alliterate with each other and the first of the two alliterating words is included in the second /ay/- /ayk/ a paronomastic image of the loving subject [I] enveloped by the beloved object [IKE]"

This secondary, poetic function of this catch phrase reinforces its impressiveness and efficacy. This could be useful for electoral purposes but educators probably will reject this as a positive feature, because of the hidden manipulation of values that it implies. On the other hand poetic structures can provide a complex but mentally manageable frame to deal with new circumstances. Furthermore, codes or cognitive mechanisms interact with each other (Salomon, 1972b p.405-55). Therefore the learning of varied messages of complex poetic form will create in the learner a proportional cognitive capacity for creative response to different situations.*1

It is possible to hypothesize that messages with less emphasis on poetic structures bore students more quickly and are less successful in gaining their attention, and vice versa. Experimental confirmation of this is found in Salomon's study (1972 a) in which children of higher 'general ability' lose interest in simple poetic messages more quickly than children of less 'general ability.' Also Gibbon and Palmer (p.28) show the value of repetition of commercials where children can find new relationships, develop recall ability and increase their enjoyment.*2

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*1
*Here we assume the existence of the conditions for adequate consonant accommodation of different structures: a structure of structures or code of codes is produced providing overall cognition. The quality of conflict in the set of the structure being learned connects with the theory of the double bind as generative of schizophrenic system of behavior. By the same logical deduction it connects with the problems of bicultural and bilingual education and socialization. If both cultures (or their languages) are in either conflict or agreement, that conflict or agreement will condition learning. (Black English, Spanish for Mexican-American, French in ex-African colonies,etc.)

*2
*The general theory of composition both in visual or in musical arts gives further confirmation of this idea.

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It is possible to hypothesize on the one hand that the mere use of poetic structure will only improve mechanical recall without comprehension. On the other hand, structural understanding of the poetic mechanism will result in the ability to reproduce it with a new content. The larger the poetic message the larger the chance of a less mechanical repetition. In fact children tend to enjoy repetition of "commercials" in Sesame Street (and in general) because they can enjoy discovering new details on the previously known levels. Each detail they perceive can enrich their comprehension of the whole (i.e. can increase their understanding of the internal relations within the message).

The Components Referred to the Receiver and Their Conative Function.

"Please, listen to the following questions and write your answers." "Let's sing together." "Which animal is big and begins with the letter E" (an elephant in video).

All three examples, even if they are structured in different ways, have a predominance of the conative function, which indicates an expected behavior on the part of the receiver.

The receiver component of the message deals directly with behavioral and affective goals. Individuals tend to give orders in the same way in which they were accustomed to receiving them. The way in which the order is delivered by the sender frames the kind of actions or choices allowed to the receiver.

There are diversified frames of reference for the different ways in which 'conative' components are presented to the student-receiver. To organize them we will divide them into:

a) conative elements that refer to logical patterns

b) conative elements that refer to receiver behavior

c) conative elements that refer to classroom interaction.

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a) Conative elements modelling logical patterns.

The broadcast lesson can structure the degree of freedom that the receiver is allowed in obeying an order. For instance, if the order is to answer a question, the question can be framed in such a way that there will be only one correct answer, various correct answers or no absolute distinction between true-false but rather between adequate/inadequate ones.

In each of the three ways of proposing a question the broadcast less will be ordering the student to follow three different logical patterns. This "way of ordering" will have an important effect in the cognitive outcomes.

If a goal of the curriculum is to teach discrimination of arithmetic symbolization, a true-false question will be adequate. On the other hand, if the objective is to understand the arithmetic process, a lesson based on true-false questions, while allowing discrimination between correct and incorrect arithmetic procedures, will not encourage any thinking about the process itself or an understanding of its rules. The predominance in a broadcast series of questions of a certain type (for instance true-false) can model the students to think in those terms, (the 'truth' of the answers depending on the official 'truth' coming from the official educational material).

The Sesame Street researchers indicate (Palmer and Gibbon, 1970, p.18) that because of the fact that television is a non-punitive medium the students have no fear of punishment. As a consequence the more secure children are less enthusiastic while the less confident ones are encouraged to try again. This assumption seems correct in general, but the non-punitiveness of the television lesson is not a given. The gratification or punishment could be internal, based on self-esteem. Again a conative pattern of the broadcast lesson can create a pattern in the student. The

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reward (positive or negative) can be not a congratulation received from the Broadcast speaker or the Other approval, but an explanation of how to evaluate the response oneself and how to understand the sources of error. With this pattern the student will be able to analyze his own behavior while learning a pattern of inner evaluation and reward.*

b) Conative elements modeling receiver behavior.

The broadcast lesson can also influence the pattern of behavior of the students on other levels of active/passive, collaborative/competitive, reactive/planned responses. Different kind of orders yield differences in the educational outcomes (Gagne, 1964)

A lesson presented with only the possibility of passive listening or watching will not encourage over participation. The success of the whole process will depend on the ability of the lesson to maintain the active attention of the students. If the lesson poses dilemmas directly or indirectly, or questions to be resolved, the students will have to take active participation in that resolution, both by writing, speaking, or thinking the answers.

The lesson can also encourage quick competitive individual responses ("Who can tell most quickly the value of $\sqrt{2048}$?"), or collaborative ones ("Try to understand, by discussion with another student friend, how the square root can be compared to the exponentiation"). It can have a pattern of reactive response ("Now, all of you, name the Mexican General that won the battle of Puebla?") or elicit a well thought answer ("Write down why you believe the battle of Puebla was important for the freedom of Mexico").

The classroom teacher behavior will naturally be modified by the attitude of the broadcast teacher. (Murray and Fitzgerald). As suggested

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*Regarding this general effect that programmed instruction produces on the patterns of student response see Hess, Robert "Computer as a socialing agent."

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by their study, to see other teachers behavior on television can modify a teachers verbal behavior.

c) Conative elements modeling classroom interaction.

The way in which the orders are given will shape classroom interaction as well as hierarchies within the classroom. The broadcast can demand either passive attention or active group action, and can determine the degree of participation of the classroom teacher. A good example of this is one lesson of Mexican Radioprimaria in Physical Education. The lesson is entitled "Orders." Here, the broadcast teacher orders the students who are supposed to be a playground to form four groups. He asks each group to line up in order of height behind a given line. Each member of each group runs to a parallel line and back and then the next goes until all have run. The first team that finishes wins. (Relay game.) During the lesson the students are ordered to accomplish each of the steps, plus to learn and to obey orders of "firm," "take distance," "number yourself," etc. This lesson is probably an attempt to teach the students a system of collective behavior, in which individuals obey simple rules with no creativity or self direction. There is no cooperation except in the form of linear addition of behavior (in this case running back and forth) and most of the time the participants are idle, having to stay quiet and inactive. There is an artificial order and a discipline leads, not to physical development and body control but to general body repression. Of course, if the curriculum goals are a product of a restrictive disciplinary tradition the conative components of this broadcast lesson will be adequate. It is possible to compare this case with a Physical Education lesson in which the students are taught self-defense, or soccer, or dance.

A line of research tends to emphasize the importance of this early conditioning achieved through the conative component of the educational

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messages, in the adaptation of the student to predefined societal roles. Bowles (1972) indicated that the 'free school' movement coincided with the need for collective work in the American enterprises and with a reduction in the importance of the individual entrepreneur-worker. In the same sense, Bon et Burnier (quoted by Milliband p.237) in "The Nouveaux Intellectuels" protest where the individualistic competitive approach in French Schools collective work is more and more the norm of the French productive system.*

The Definition of the Receiver by the Conative Component of the Broadcast Educational System.

Orders for acting (given in a more or less explicit way) define not only the kind of task to be done but also the "subject" who is to do them. Therefore, the way in which the broadcast speaker, with his institutionalized high prestige, defines the subject will be a frame for the student's concept of "subject." The broadcaster has no way (contrary to computer programmed instruction) of individualizing its receiver. He can not say "Do this Johnnie." to Johnnie. The orders are general and delivered to a collective audience. Therefore, the broadcast speaker will achieve 'subject constitution' that differs in nature from that produced by the classroom teacher. The orders of the latter can reinforce the concept of the 'individual subject' by referring to particular individuals.

The Components Referred to the Channel and Their Contact Function.

In all messages there are components indicating the actual performance of the contact achieved through the specific channel being used. This is so for the simple telephone "Hello" as well as for the subtle diplomatic gestures meant to indicate that the channel is open for exchanges. Jakobson (1960, p.356) says that the contact is the first verbal

*See also Bourdieu and Passeron, 1971.

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function acquired by infants: "they are prone to communicate before being able to send or to receive informative [referential] communication."

In the broadcast educational message the contact function is basically devoted to attracting and maintaining the attention of the students. Normally the broadcast lesson begins while the students are still occupied with other tasks (educational or otherwise.) The message has to say very clearly, "Here I am," and make students shift the focus of their attention. In the classroom, the shift of the attention can be forced by a teacher's order. But in other cases, such as a home viewing situation or when the teacher is busy with other groups, the educational broadcast must establish the connection by itself.

The students learn to identify it quickly and the more attractive the beginning the more easily the attention is caught. The rule of a basic structure with variations to increase interest is usually followed here. The diversity of this structure and the humour and surprise of the variations directly determine the degree of the students' attention.

Several techniques of contact have proved useful in maintaining attention:

- Palmer and Gibbon state that synesthetic sound (in this case a slide shistle sound) "stimulates the children to tune in the program."
- Unexpected changes like sudden music, shifts from a regular voice to strange voices, asking a question, etc. are also "awakeners" (Reeves, 1969, p.16).
- Interpolations like "let's see, boys," "how are you" etc; or more serious questions like "Have you really understood what the grandpa meant?" are also good ways of recalling attention.

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Schramm (1971, p.29) reviews a study by Pockrass which proves that learning was increased by the insertion in a television program of one minute rest pauses. The silence on the screen and the forced silence in the classroom prompted the students to think about the message.

In some cases the methods of maintaining attention are more complex. For instance, the broadcast character may create a fantasy of being together with the students on a trip over the subject matter: "Now, we are all together in a space ship visiting the Universe." (Mexican Radioprimaria lesson about the planets.) Mere imaginative contact can become involvement and identification with the sender. (We develop this point in the emotive component, page 36.) The Mexican Radioprimaria often uses this strategy to dramatically involve the children in the program.*

Radio is much more powerful in this sense than television. Cantril (1935, p.14) advanced the yet untested idea that "radio develops the use of imaginative completion of the situation in the mind of the listeners." and adds, that "the use of television will end this effect." A television image presenting the context of action creates what Brecht called "critical separation:" the increase in distance between content and receiver that allows the receiver to have a critical attitude.

We would like to include here a suggestive paragraph by Rudolph Arnheim, who is now leader of visual education. In 1936 he wrote about radio:

"But radio drama is more radical than Shakesperian drama in dispensing altogether with visual experience.In so doing, it has placed an unaccostumed burden upon the listener's visual imagery,

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*Personal observations of the author have confirmed the high recall of the material learned in this way.

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a relatively neglected function of the adult human mind.

The visual imagination of the children is both fresh in compelling but in adults it has been impaired by long adaptation to the ready-made settings of the cinema and stage and dulled by the routine of living. The advent of television will change the situation and will destroy one of the most distinctive benefits that radio has brought to a too literal-minded mankind."

Salomon and Snow have defined this effect in a general way as "supplantation" "presentation can be meant to accomplish a supplanting function when it replaces the covert operation that the learner would have to activate on his own." (Salomon, 1972b, p.411)

The Contact Function and the Lack of Feedback.

Broadcast educational systems in most cases have no feedback from the students. They tend to care mainly about the beam reaching the student which is undirectional. The students are socialized under this one-way pattern of communication with no interaction possible. Through film [and through any media] "students learn to learn" (Salomon 1972 a,b.) Unfortunately, the contact function in these cases will fulfill the side effect of internalizing in the students the habit of accepting the message received from a central point, making them believe that there is egalitarian communication, while in fact there is only unidirectional control. This habit pattern may be generalized to other areas of social life.

This basic shortcoming of the broadcast educational message can be solved by different pragmatic approaches. The technological approach will offer feedback possibilities, but since these possibilities will be themselves prelimited by the programming real participation of the students

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will be reduced.

Non technological approaches already include participation (real or by surrogates) of the students in the programs and an institutionalized system of criticism and discussion of the programs, which should be acknowledged on the air.

The Components with Referential or Denotative Function.

The importance given previously to the other components of the message does not reduce the importance of the most commonly accepted function of the message: to refer to something, to conceptually denote.

In the first grades of school the other functions are more important because they influence learning and cognitive styles. The more defined these elements are in the students, the more important the referential elements become. The kind of elements that are included in the message are going to be the privileged elements, the ones officially accepted, thinkable about, and talkable about. The letter "W" can suddenly become an important element in the mind of a 5 year-old after watching "Wanda the Witch" commercials in Sesame Street where the "W" appears more than fifty times in two minutes playing all kinds of roles. By the same token the "Revolution" can be a familiar and tangible thing for a Cuban student whose math problems talk about conditions before and after the revolution. (Fagen, 1965)

The referents of the message are concepts of things, not things themselves. Things exist because one is able to differentiate them from an indifferentiated continuum. Symbolic language (especially verbal) is the vehicle of such discrimination. Therefore, the frequency in the inputs to students of certain words will privilege the concepts to which those words refer. If those words are new to the students, they force the creation of

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new concepts (letter "W", the idea of multiplication, or the concept of empathy) about which it is convenient and possible to think. For this reason the Sesame Street series of the first years was severely criticized by different minority leaders for not having Chicano characters in it and because it never depicted rural environments or elements.

An increasing number of studies about discrimination in the news or mass media messages have brought to the surface the biased selectivity of characters, problems, roles, habits, etc. Paulo Freire's model of education bases its approach on exactly that issue. He proposes that the teachers obtain the referents from the learners, those words that are relevant for them, and after showing how those are written, the teachers should encourage discussion to bring up related words which in turn can be learned and generate more discussion. In this way, the referent of the lessons is created by the students.

Attempts to develop measures to predict the educational value of the referential component have been laborious and only partially successful. Some findings include:

a) the referential factors "realism," "deviance," and "characterization" plus the poetic factor of "closure" accounted for more than two thirds of the preferences in an experiment about the attractiveness of television form and content. (Hazard, 1965).

b) The "vagueness" index (overuse of such words as pretty, very, some, maybe, etc.) will yield valid prediction in gain scores in comprehension tests. (Rosenshine, quoted by Carrol, p.107)

c) The "human interest" index developed by Rudolf Flesch (quoted by Sellers)

d) "Ambiguity" of the symbolic material (word or images) appears not to be a problem if there is a basic context for disambiguation

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(various authors quoted by Carrol, p.118)

e) "Density of semantic information" (Heap, 1969, p.305) measured by the ratio of nuclear statements to supporting statements, proved that more density produces less comprehension.

The Component Referred to the Addresser and its Emotive Function.

Jakobson describes the emotive function in the oral language as follows:

"Focused on the sender or addresser, it aims at a direct expression of the speaker's attitude towards his subject matter. It tends to produce an impression of a certain emotion, whether true or feigned."

We have previously mentioned his experiment in which a famous actor was able to convey fifty emotional situations by diversifying the expressive tint of the utterance "this evening." All of these emotions were correctly decoded by a sample of listeners. Therefore, it is plausible to expect different emotional meanings to be attached to the same abstract concept told by the old storekeeper in Sesame Street and once by a traditional teacher trying to be neutral and serious and is an abstract concept, given the same verbal form in each case.

On the radio, the emotive function has even deeper consequences, because of that medium's imaginative power. The sender can identify himself as being one of the students, a second teacher or even the subject matter itself. ("I am the heart," "I am the number 5.")

Different organizations of the learning situation can be produced by this self-definition of the sender which, as we have seen is the institutional voice of the educational system with all the attached prestige (or B.E.M. ego.)

It is possible to advance as hypotheses some of the possible

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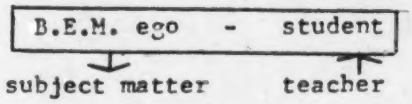
consequences of each identification:

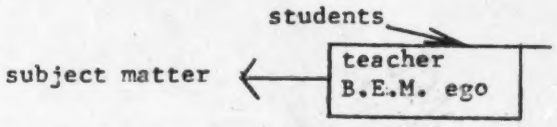
Case a)



Example p. 36

Here, the students are the subjects of the process. Their relation with the subject matter is direct, their involvement is high and the teacher maintains a secondary relation, outside the relation of the students to the subject matter.

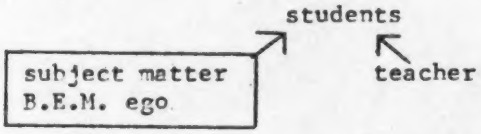
Case b)



Example p. 36

Here, the broadcast and classroom teachers are the subjects of the process, and the students relate to the subject matter through them, filtering their perception through the figure of the teacher.

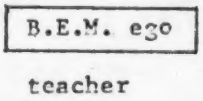
Case c)



Example p. 36

Here, the broadcast message-subject matter is the subject of the process, the students the object of it, and the teacher is outside as controller or helper.

Case d)



Here, the B.E.M. clearly and continuously asserts itself as teaching aid material. In this case the teacher adopts the traditional role and becoming the central authority.

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Factors relating to the Self Definition of the Addresser.

Different studies have analyzed the perception and consequences of the self references of the addresser.

Reeves (p.17) exemplifies the effect of this component:

". . . Throughout the screening of various films, we became increasingly aware of the importance of vocal qualities. In several of the cartoons we tested, the voices were poorly done and the children lost interest. The children particularly enjoy hearing other children's voices. Several films that evoked only a mild interest from viewers were much more appealing when children's voices were added to the sound track.

The Component Referred to the Code and its Metalinguistic Function.

The metalinguistic component of the message refers to the fact that any message expresses the specific codes selected for its production. If Sesame Street presents an image saying "Hermit good bueno," the inclusion of the Spanish term 'buero' is not primarily to teach two different ways of saying 'good' but rather to inform the Spanish speaking or bilingual audiences of Sesame Street that both languages are equally valid and interchangeable. The message is saying "we like to talk English and Spanish and we teach them as important ones and compatible languages." The children probably do not have the concept of 'different codes,' but if they see both forms being used in their environment they will interpret the message as saying "both forms are O.K."

On the other hand the broadcast educational message may 'disqualify' some of the codes children use in daily life, like "street language,"* simply by not using them. Children in rural areas listening to radio

*Street language is language that is other than school language or home language. It is a good example of the allocation of values to physical spaces (street, school, house) through the allocation of exclusive hierarcical codes of them.

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programs spoken in 'urbanese' will react by negatively judging their rural dialect and the idiomatic features of their speech. This may generate ambivalence and/or other different solutions at the psychological level (e.g. conformity and acceptance of their inferiority, rejection of the message and everything related to it, or in the case in which the duplicity and 'double binding' are unavoidable, different forms of adaptive split personality.)

In primitive non-modern educational systems this contradiction hardly appears because the members of the children's group with whom children live are responsible for the code transfer.

The formal school system was a first step toward code differentiation following social and economic lines. However, the presence of the teacher in the classroom (even if, in general, the teacher belongs to a slightly higher social stratum than the children) acts as a mediation between codes (the children's and the officially accepted ones.)

The broadcast message, without such an individual teacher-student relationship, increases the scope of the problem. By definition its audience is massive, or at least large, and probably encompasses different social and geographical groups. Also, the producers tend to be socially and linguistically farther from the students than the classroom teacher. Rudell (quoted by Carroll, p.114) showed that children's performance in reading comprehension is partly a function of the extent to which the syntactic patterns in their reading material are similar to patterns in their oral speech, even when vocabulary difficulty is controlled.

"homogenization" and "distantiation" of codes then, "are two of the greater handicaps a broadcast system must overcome. Gibbon and Palmer, warn about these effects saying:

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"Children have a finely tuned ear for material appropriate to their interest. An adult talking adult talk will cause the child to turn his attention away from the set. He appears however to continue some auditory monitoring for as soon as any auditory cue, such as the inherently comic slide whistle [contact component] suggests the imminence of potentially interesting program material, he will refocus his visual attention on the screen."

The effects of 'homogenization' and 'distantiation of codes' can appear not only with linguistic codes but also with codes of behavior, non-verbal communication, objects and environments. Different solutions are possible to overcome this handicap:

a) <u>the assimilation of settings and characters to the target audience ones.</u>

In Niger, educational television has used, duringthe first two years of programs, settings, clothes and people already familiar (as types) to the students. They even actually built a village near the studio. The Sesame Street solution tends to be similar. However, in the first year, they received protests because their codes were exclusively 'poor-urban' with no 'poor rural' and because Spanish was absent although large sections of its target audience were Puerto Rican or Mexican-American children.

b) <u>the participation of the audiences in the actual production.</u>

The presence and participation in the programs of actual students belonging to different social and dialectal areas can convey to the audience the message that diversity in 'educational discourse' is accepted and at the same time give them a feeling of vicarious participation in and probably demystification of the program sources and producers. At least if the broadcasters are on "Olympus," students are welcome there.

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The kind of participation the students eventually have in the programs will influence the final effect of the teaching. If they are reproducing in the "airwaves" the hierarchies of the classroom, or if their language particularities are dismissed or accepted as 'curiosities,' the effect will be to reinforce a negative evaluation by the students of their own particularities.

The Learning of the Codes of the Media or "Media Literacy."

A new general area of nonverbal codes has been opened up by radio and television that relates to the media themselves. Salomon (1972 b p.406) refers to this:

> "Internalization of media codes would then mean the schematic use of certain media conventions, schematic operations, etc., as 'tools of thought' such as, for instance, being able to think in terms of say slow motion, split screens, or diagrammatical spatial assangements. Could one learn to slow down new processes of imagistic thought as a consequence of exposure to films in which this technique is repeatedly used? Or, could one become a better cue-attender as a result of exposure to films showing intensively the operation of zooming in?"

Salomon also finds (1972 b, p.408) substantial correlations between ability to understand the codes of maps, the ability to represent graphically spatial relations and "general spatial ability."

On the other hand, the study of Navajo film-makers shows that different cultures have different ways of forming mental representations, and different rules for selection and combination of images that become the rules for their film productions. It is possible to predict that the media codes of the professional producers from, for instance, Mexico City,

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will influence the mental representation codes of the rural 'telestudents.'

It is becoming usual among audiovisual practitioners or planners to question whether specific audiences of students are "movie literates" or "media literates," by considering their previous exposure to film on television. This concept is now being introduced in the research literature (for instance, Salomon, et al 1972 a) and its educational consequences in terms of cultural cognitive development, preservation or replacement are just being recognized.

Salomon (1972 p.411) explores, and confirmed experimentally, the hypothesis that a learner who is exposed to a film (or any other medium) that supplants a mental process*1 is very likely to imitate, generalize and use as a generalized schema, the process he observes.*2

This is consistent with the findings of the structural school of anthropology which has investigated the modeling and constitutive effect on culture of the rules of myth building (Levi-Strauss, 1958), and also with the new school of film criticism (Henderson, 1972) and with the theory of the school as an institution for the transference of the dominant cultural codes to the groups entering the culture. However, it should be clear from the previous analysis that the code disruptions are not necessarily a consequence of the use of new media technology but are a result of the particular rules of production and control by which they are organized and under which they perform their educational tasks.

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*1 In the same sense, Witz and Easley indicate that children should be encouraged to think and develop what they are thinking, and that the curriculum planner should respect the natural processes of the children.

*2 The demonstrated action should: a) carry with it some premises of new adaptations, b)be subjectively novel, c) be compatible with the learner's way of internal representation.

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Summary

This work attempts to organize a number of findings, theories and examples related to broadcast educational messages within the general model of the component and functions of the message developed by Roman Jakobson. Actual examples from television (mostly from Sesame Street) and from radio (mostly from the Mexican Radioprimaria) were used for purposes of analysis.

The poetic function of a message is explained via Levin's formal structure of couplings of equivalences. This helps explain particular research findings about comprehension, attention, recall and cognitive development. Special attention is given to the analysis of the interplay of levels of message (analogic/verbal and video/audio) in terms of distraction, reinforcement and overload. A model allowing producers and researchers to control these formal and semantic relations in radio and television messages is developed.

The influence of the conative function, on logic, personal behavior and class interaction results is explored and it is pointed out that the broadcast message can establish different kinds of contact with the students, each of them implying different effects on educational process and outcomes. These effects are analyzed in the contact function and differences between radio and television contact are explored.

The denotative function is analyzed in relation to the enhancement of certain cultural elements over others simply as a result of the educational message does and does not talk about. The particular role of the broadcast teacher, depending upon his self-definition, his attitude toward what he is teaching, and his students, is the subject of the expressive function.

A model is proposed that the broadcast speaker may assume four

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possible roles. He may identify with the students, with the classroom teacher, with the subject matter, or as a separate entity.

The problem of the adequacy of the languages and codes selected (natural languages, regional and class dialects) and the mixing and hierarchies among them are analyzed in the metalinguistic function. Bilingual and multicultural conditions of the student audience are connected with characteristics of this component and possible solutions are offered.

Even though the analysis is an attempt to include different theories and research in a more inclusive, explanatory model, it opens new avenues for experimental work, both in research and production. Connections made among different theories and research suggest new hypotheses for research and the basis offer the new combinations for creative choices.

Each unit of energy and talent invested in improving educational messages devoted to mass audiences has a multiplicatory effect. The use of the model presented, in that sense, should be considered not only a call for systematic understanding of the forces of broadcast speech but also a call for audacy and invention to refresh the process of knowledge transfer and production in our educational systems.

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